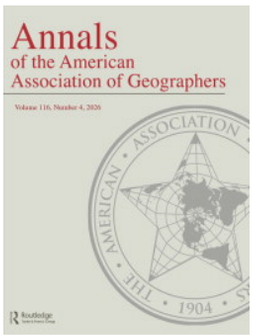

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Persistent Surveillance: Military Blimps in Contested Territories

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The military has long favored occupying high grounds to establish strategic dominance. Maintaining elevated surveillance posts over extended periods has always been a challenge, however. This article examines the rise of the blimp, a secretive technology that has solved that problem by offering persistent surveillance from the air. Originally deployed by the U.S. military in foreign war zones, these blimps have since been introduced on domestic soil. Drawing on a corpus of official records, corporate documents, and leaked war logs, the article explores the inner workings of these blimps, revealing their role in shaping the U.S. military's information superiority. It begins with a brief history of the military balloon, tracing the surveillance-oriented origins of aeromobility. The article then turns to the social and political implications of this technology, with a focus on the Afghan mediascape, where locals resisted the persistent surveillance blimps by critiquing their power and purpose. It concludes by arguing that persistent surveillance blimps, equipped with sophisticated Wide Area Motion Imagery (WAMI) systems, represent a paradigm shift. They transform episodic data collection, often carried out by drones, into continuous, omnipresent surveillance, with serious implications for privacy, freedom, and sovereignty in war zones and beyond. *Key Words: Afghanistan, blimps, persistent surveillance, privacy, vertical governance, WAMI.*

In 2011, the U.S. Department of Defense faced an unexpected problem: It could not find enough helium in the United States to purchase (Lim 2011). Helium, a tasteless, odorless, nontoxic, and lighter-than-air gas, is used across several industries. Its applications range from making party balloons to its vital role in medicine, where substantial volumes are required to operate MRI machines. In the 2010s, however, the U.S. military emerged as a new competitor for helium, significantly increasing demand for this previously niche resource. It needed the gas for a new breed of surveillance technology: the blimp. Military blimps are giant, high-tech stationary balloons filled with helium that hover over contested spaces. In 2011, the military was "sending so many spy blimps to Afghanistan" that helium suppliers struggled to keep pace (Lim 2011). The surge in military demand transformed helium from a specialized industrial gas into a strategic commodity, with its scarcity threatening not only military logistics but also medical supply chains. In just two years, from 2009 to 2011, the U.S. military's demand for helium in Afghanistan increased from 49,000 cubic meters to an estimated 531,000 cubic meters (Lim 2011; Bureau of Land Management 2015). In 2013, Congress passed special legislation to ensure a steady supply of helium for critical applications, from military surveillance to medical technology (Helium Stewardship Act 2013). The United States remains both the largest producer and the largest consumer of helium in the world (Bureau of Land Management 2015).

Military blimps neither drop bombs nor fly around but remain fixed in the sky for up to thirty days at a time, maintaining a constant gaze over dense population centers, war zones, or borderlands (Bolkcom 2006). Most tethered and some free-floating, U.S. blimps in Afghanistan hovered between 1,500 and 3,000 feet above the ground watching cities and villages nonstop (Figure 1). They were equipped with a surveillance system known as Wide Area Motion Imagery (WAMI), with sensors that included infrared cameras, listening devices, and a field of view as vast as 100 square kilometers (Defense Visual Information Distribution Service 2010b; Marion 2017; Lockheed Martin 2020). Their cameras captured two high-definition photographs per second, creating a continuous video feed of the land below,

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Figure 1. A U.S. persistent surveillance blimp over southwest Kabul, the capital of Afghanistan, 2012. Photo by author.

monitoring people, vehicles, and animals at all times—even watching, as will be discussed, moments of personal privacy, such as when people were relieving themselves. When an attack happened, analysts could rewind the recorded footage to trace the sequence of events leading up to the incident, a method that helped them identify those responsible and their associates. Monitoring the video feeds of a single blimp required twelve analysts on the ground, and that was often not enough to manage the data as the analysts had to track hundreds of moving targets simultaneously (Defense Visual Information Distribution Service 2010a). By 2019, the Department of Defense had accumulated such a large volume of vertical surveillance data that it was no longer feasible for human analysts to process it. As a result, the Department enlisted Palantir to deploy artificial intelligence (AI) technologies to automate the task of target identification (Jacobsen 2021).

The blimp, as a technology of vertical governance, is often employed by states that lack the capability or legitimacy to assert effective control on the ground. Its ability for persistent surveillance has made it a popular instrument of achieving information superiority in war zones. In Afghanistan and Iraq, these giant balloons dominated the skies, serving as high-tech extensions of U.S. military's aerial weapons. Their unique capabilities, particularly their endurance in the air and wide surveillance coverage, made blimps one of the most effective tools for intelligence gathering. They played a crucial role in the data-driven warfare of the United States in the Middle East, supporting force protection, target tracking, and forensic surveillance. In recent years, the U.S. government has expanded blimp operations to domestic soil (Nissenbaum 2012; Ferguson 2022). The United States is not alone. Persistent surveillance blimps are gaining popularity acroases the world, especially in contested territories. China has deployed blimps over the South China Sea (Zhen 2019), Turkey uses them along its border with Syria (Anadolu Agency 2020), and Israel used them during its 2024 occupation of southern Lebanon (Harding and Homsi 2024). Given their

effectiveness, persistent surveillance blimps are likely to see even broader adoption in the future, especially in contested spaces.

This article, after a brief history of military balloons, presents a critical analysis of the persistent surveillance blimps deployed by the U.S. military in Afghanistan. When it comes to contemporary war machines, the headline-grabbing drone—the blimp's more lethal cousin—has dominated the conversations both in the scholarly literature and public discourse (Gregory 2011a, 2011b; Andrejevic 2016; Parks and Kaplan 2017). With some exceptions (Shrestha and Fluri 2023), the blimp, however, remains largely understudied in aerial surveillance scholarship, and little is known about its operations in the Middle East or its public perceptions. This article examines the blimp as a technology of persistent surveillance, analyzing its role as a medium of warfare, and situating it within the broader surveillance apparatus of the U.S. military. The focus then shifts to Afghanistan, where the article addresses the question of how people in Afghanistan responded to living under the constant, unblinking gaze of U.S. surveillance blimps for nearly two decades. For years, these giant balloons hovered above cities, villages, and remote rural areas, becoming permanent fixtures of the landscape in Afghan cities and villages.

By centering the experiences of Afghans, the "targeted class" (Parks 2016, 231), this study seeks to assess the impact of persistent surveillance from the perspective of the victims, rather than the victors. It draws on a range of sources, including government records, corporate documents, and leaked war logs, to explain the inner workings of this secretive spy machine. It also draws on coverage of the blimp in the Afghan mediascape, both in Persian and Pashto, the two main languages of the country. These local discourses provide valuable insights into how those who lived for years under the persistent gaze of these balloons resisted them. This article positions the surveillance blimp both as an instrument of vertical state violence and as a significant technology of persistent surveillance, an emerging mode of aerial data collection distinct in form and function from drone surveillance. By examining the blimp, this study contributes to critical geography and surveillance scholarship, expanding a field that has, to date, focused primarily on the drone.

The Vertical Infrastructures of State Violence

Advancements in aerial surveillance technologies have transformed the art of modern warfare. The contemporary war is driven, more than ever, by each side's ability to have a better and broader view of the battlefield from the air. Remote-sensing technologies now play a critical role in tracking enemies, assessing their capabilities, identifying targets, and directing precision strikes (Andrejevic 2016; Parks 2016; Suchman, Follis, and Weber 2017; Packer and Reeves 2020; Cheikhali 2023). In 2022, when Russia invaded Ukraine, the war initially looked like a twentieth-century trench war. It quickly evolved, though, into a remote-controlled, drone-centric conflict, with drones now responsible for up to 70 percent of deaths and injuries (Santora et al. 2025). Today's wars, one could argue, are won and lost vertically. Drones, in particular, have become a central focus of scholarly debate, with a growing body of literature examining their role in reshaping the spatial logics of war, surveillance, and state power.

Vertical surveillance is the area where drones, and other remote-sensing technologies, are most widely employed. It was the introduction of aerial photography—a combination of airplanes and cameras—during World War I, according to French theorist Virilio (1989), that served as a critical milestone in the evolution of what he called the "logistics of perception" (4, 38). Virilio's work provided new insights into the role of visual technologies in warfare, emphasizing how the ability to see and interpret the battlefield has become essential for achieving dominance. His critique of weaponized knowledge highlighted how modern warfare has evolved into a data-driven enterprise, where perception holds as much strategic importance as physical force (Gregory 2011a, 2011b, 2018; Parks 2015; Parks and Kaplan 2017; Kaplan 2018). In the early twenty-first century, the U.S. War on Terror, where technologies of perception assumed an even greater role, reshaped notions of territoriality. In this new "everywhere war," fought largely vertically, battlefield boundaries dissolve, and drones have obscured "where the battlespace begins and ends" (Gregory 2011a, 248). This deterritorialization of conflict, enabled by remote-controlled air power, has given rise to new forms of global policing. As Neocleous (2013) observed, this development is hardly unexpected

because "air power has always been police power" and the drone is a continuation of the "police logic inherent in air power" (589), something that dates back to the early twentieth century. Even in stable Western states, law enforcement agencies now treat the air as a three-dimensional space "in which, on which, and through which" they operate (Klauser 2022, 153).

The verticality of contemporary state violence, both on and off the battlefield, is best exemplified in Israel. Weizman (2002, 2017a) has demonstrated how the Israeli state's colonization of Palestine relies on a vertical network of infrastructures to maintain an omnipresent regime of surveillance and suppression involving the subterrain, surface, and air. Israel's innovative techniques for seizing and maintaining control over Palestinian lands have earned it, in the words of an Israeli general, the title of "world champions in occupation" (Weizman 2017b). After Weizman's work on Israel's "vertical apartheid" (Weizman 2017b), other scholars expanded the concept of verticality to interrogate the militarized pursuit of areal domination. In his exploration of the geopolitics of verticality, Graham (2004, 2016) examined how densely populated urban environments, such as Baghdad, complicate the vertical exercise of violence due to their physical and social complexity. At the same time, he demonstrated that contemporary warfare has become increasingly vertical on both sides, with drone strikes from above and subterranean tunnels used by militants from below (Graham 2004, 2016). Verticality, therefore, has created new spaces of surveillance and evasion in contested territories. This layered battlespace, as Elden (2013) argued, calls for a rethinking of geopolitical territory through the lens of volume. When we speak of territorial sovereignty and security, Elden contended, we must also account for airspace, outer space, and subsurface environments such as bunkers, tunnels, and pipelines (Elden 2013). A volumetric approach to territory would help us better understand the verticality of modern geopolitics.

As technologies of sensation and perception advance, they expand the scope of visibility, which in turn, bring new categories of enemies into focus. This, as Packer and Reeves (2020) pointed out, is similar to van Leeuwenhoek's (1632–1723) invention of the microscope—a vertical seeing machine—that unveiled previously invisible enemies: germs. Since this revelation, the world has been engaged in a battle against this newly discovered adversary. The same logic applies to military surveillance in necropolitical spaces. There is an arsenal of advanced technologies behind the U.S. military's methods of enemy identification that are secretive, automated, lethal, and most important, vertical. This vertical orientation has produced what Gregory (2023, 372) called "areal essentialism," a spatial logic that shapes the U.S. military's conduct of war. This form of essentialism is sustained in part by algorithmic systems that convert surveillance data into ostensibly definitive targets, which are, in reality, often unreliable (Amoore and Raley 2017; Amoore 2019). As Amoore (2019) argued, the main function of these automatic systems is less about accuracy than about minimizing uncertainty, generating fixed numerical scores that are "rendered as a decision placed beyond doubt" (149). Human oversight in this largely algorithmic "kill chain" process does little to change its outcomes, as human agents "can never meaningfully engage the plurality of posthuman doubts lodged within the calculus" (154). Despite its flaws, the automation of target identification remains pervasive, as recent conflicts make clear (Abraham 2024).

In Afghanistan—and in other war zones where counterinsurgency was central to the warfare—persistent surveillance became a core military strategy, often executed by loitering drones. Despite the rhetoric, however, drone surveillance offered only an illusion of persistence (Williams 2011). As Williams (2011) argued, drones were constrained by their reliance on human pilots, who were unable to maintain surveillance over a fixed area for extended periods. "Even though the vision technologies within the Reaper's airframe enable the operators to see more than they could with the naked eye," she noted, "it is still their eyes that are ultimately responsible for providing the final visual recognition of what the Reaper is 'seeing'"(Williams 2011, 386). This is a limitation that blimps in Afghanistan did not share. Equipped with a WAMI system and Palantir's AI-powered software that automated target identification, spy blimps were truly persistent vertical surveillance platforms (Jacobsen 2021). Their persistence in air, as Shrestha and Fluri (2023) showed, transformed large urban areas into "quasi-carceral locations" where people were monitored nonstop like prisoners (4). Unsurprisingly, most residents of the Afghan capital held a negative view of the U.S. blimps, believing that they had no impact

on improving security (Shrestha and Fluri 2023). The residents, however, unable to resist or evade the blimp, submitted to its presence in resignation.

Despite the field's extensive engagement with drones, aerial warfare, and surveillance spaces, critical geographers, with the notable exception of Shrestha and Fluri (2023), have paid little attention to persistent surveillance blimps. One reason for this relative neglect might be quite simple: The blimp does not shoot. As the saying in the news industry goes, "If it bleeds, it leads." The U.S. blimps in Afghanistan did not directly kill, but they were a crucial link in the "kill chain." They collected data, a function less dramatic than firing missiles. As a result, they have been less appealing to scholars concerned with the direct violence of war. Artists, however, found the blimp compelling and were drawn to its aesthetic appeal. As a dominant feature of Kabul's skyline, the blimp was a striking visual object, an alien presence that transformed the city's landscape. Italian photographer Antonio Ottomanelli's *Big Eye Kabul* (2011–2016), U.S. documentarian Kirsten Johnson's *The Above* (2015), and Kabuli artist Aziz Hazara's *Kite Balloons* (2016; Figure 2) are just a few works that feature the U.S. persistent surveillance blimps in Afghanistan (Hynes 2015; Experimenter 2016; Peluso 2018). In *Khak va Marjan* by Masoud Atyabi (2013), an Iranian film set in Afghanistan, the blimp appears as a defining feature of the Afghan capital's cityscape with one character noting that it "knows everything about us" (Atyabi 2013). For these artists, the blimp—more than a tool of surveillance—is a looming symbol of colonial control and violence. Its presence, more than any other object, laid bare Afghanistan's condition as an occupied space.

Surveillance and Persistent Surveillance

Surveillance, broadly speaking, refers to the state's collection of personal information for the purpose of managing the population (Lyon 2002). Ideally, this

Figure 2. A U.S. persistent surveillance blimp over Kabul. The image is part of *Kite Balloons* (2016), a series of four photographs by artist Aziz Hazara. Photo © Aziz Hazara, 2016.

process is carried out with the consent of citizens, as seen in routine data-gathering schemes such as the national census, driver's license applications, and public service programs, where people voluntarily provide personal information to the state. In cases where the state seeks to search or surveil an individual without their knowledge, particularly for the administration of justice, a warrant must usually be obtained from a court. This warrant typically names the individuals to be surveilled and defines the limits of the search and surveillance in terms of duration, scale, scope, and geography (Kaminski 2017; Ferguson 2022). This, more or less, is how traditional surveillance works. Despite occasional lawbreaking by surveillance capitalists and security agencies—whose insatiable appetite for data has, at times, resulted in illegal surveillance—people in democratic countries can still expect a reasonable degree of privacy in their daily lives.

Persistent surveillance technologies have changed all that. Originally a military term, persistent surveillance is the continuous, automated collection, storage, and processing of data on targeted persons or areas using integrated tracking and analysis systems (Joint Chiefs of Staff 2017). The data gathering in persistent surveillance is often warrantless. Common civilian technologies such as mobile cell towers, closed-circuit television (CCTV) cameras, and the Internet can also serve as tools of persistent surveillance, as they capture data related to a person's location, communications, and social networks in real time (Ferguson 2022). People, however, can easily challenge their persistence by turning off their phone, avoiding walking under CCTV cameras, or staying offline altogether. By contrast, wide-area vertical surveillance platforms, such as military blimps deployed for years over Afghan towns and villages, lack these vulnerabilities. Their unmatched capacity for persistence and coverage is why the U.S. Supreme Court found such surveillance platforms unconstitutional, ruling that it violated both the Fourth Amendment right to privacy and the First Amendment right to free association (*Leaders of a Beautiful Struggle v. Baltimore Police Department* 2021).

The military deploys blimps over contested territories, areas considered battlefields, because it cannot operate on the ground with legitimacy or safety. In these spaces, local populations view the military not as a protective force but as an occupying power. As a result, the blimp becomes a tool of remote control, enabling persistent surveillance from above over populations that reject the authority below. Put differently, the presence of a blimp is often the physical manifestation of illegitimate force: Wherever one hovers, it signals that those who launched it cannot govern from the ground. According to a U.S. military manual, battlefield intelligence gathering should prioritize "near-continuous, all-weather, day/night surveillance of the target through the efficient utilization of all appropriate collection assets in persistent surveillance, as opposed to periodic reconnaissance, mode" (Joint Chiefs of Staff 2017, III–30). The manual notes that the emergence of "long-dwell collection platforms" in recent years, such as the blimps, has transformed the task of surveillance allowing the military to "monitor, tag, track, characterize, and report on movements and activities" of a target in a continuous fashion (Joint Chiefs of Staff 2017, III–30). Thanks to sophisticated software programs, persistent surveillance integrates information from multiple data sources and multiple surveillance assets to create a comprehensive, real-time situational awareness for war fighters allowing them to respond to emerging threats or conduct forensic surveillance with efficiency and precision.

In the U.S. war in Afghanistan, persistent surveillance platforms were critical instruments of warfare, as the conflict was primarily conducted as a vertical operation, with most strikes executed by drones (Gregory 2023). In this mode of warfare, military effectiveness depended on the ability to determine where to strike and whom to target. This raises the question of what Packer and Reeves (2020, 4) called "enemy epistemology"—the techniques and technologies through which the U.S. military identified targets. Identification was often not based on personal data such as names, addresses, or occupations, but rather on behavioral patterns: information that could only be gathered through persistent aerial surveillance. Within the U.S. military's taxonomy of drone strikes, "personality strikes" referred to operations targeting known individuals, whereas "signature strikes" targeted individuals whose identities were unknown but whose behavior matched "a preidentified 'signature' of behavior that the U.S. links to militant activity or association" (Center for Civilians in Conflict 2012, 8). The majority of strikes fell into the latter category. These operations

relied heavily on vertical surveillance to conduct pattern-of-life analysis—tracking certain individuals or groups over extended periods to assess whether they posed a threat (Chamayou 2015; Gregory 2023). This form of targeting, as mentioned before, was only possible through continuous tracking, making long-endurance surveillance platforms indispensable to the conduct of the war.

A Brief History of Vertical Datafication

"All armies prefer high ground to low," wrote Sun Tzu in *The Art of War* in the fifth century BCE, the most famous military treatise that has survived from ancient China (Tzu 1910, 84). A preference for high terrain in a battle is understandable, as gravity favors projectiles launched from above over those launched from below. There is, however, another equally important reason an army would seek to occupy elevated terrain: intelligence gathering. Success in war requires knowing the enemy, and from higher ground, one gains a clearer view of the enemy's position and strength. Sun Tzu had wise words on this, too: "If you know the enemy and know yourself, you need not fear the result of a hundred battles" (Tzu 1910, 24–25). Whereas knowing oneself was relatively straightforward for generals, knowing the enemy required information collection—a task most effectively accomplished from natural high ground or constructed vantage points. Watchtowers were developed to fulfill this defensive need and stood as the most effective surveillance infrastructure for centuries (Peters 2013). The watchtower's dominance lasted until the modern age, when a new technology for vertical data collection was developed.

In the eighteenth century, the French pioneered the modern era's equivalent of a watchtower: the hot air balloon, or the "äerial fire machine," as some would call it (Wise 1873, 220). During the 1780s, two French brothers, Joseph-Michel and Jacques-Étienne Montgolfier, became the first to construct such a device. The mechanics of their invention were based on the principle that hot air is lighter than cool air. When a balloon was filled with heated air, they noticed, it would fly. The brothers, who were papermakers by profession, built their balloon using lightweight materials such as cloth and paper. Beneath the balloon, they placed a fire source to generate hot air. The hot air filled the balloon, which created lift (Gillispie 1983).

On 19 September 1783, they planned a public demonstration in Paris in front of King Louis XVI and Queen Marie Antoinette at the Palace of Versailles. The brothers had constructed a special balloon for this event, which they named Montgolfière. Initially, King Louis XVI was hesitant to allow humans to ride the balloon, fearing they might either vanish into the unknown heavens or die if the balloon crashed. The king, however, "would only permit the experiment to be made by two criminals condemned to death" (Wise 1873, 220). Someone quickly pointed out, though, that it would be unseemly for "vile criminals" to have the "glory of being the first to rise into the air" (Wise 1873, 220). The king backed down. It was eventually decided to put animals (a sheep, a duck, and a rooster) on the balloon instead. The Montgolfier brothers ignited their balloon's fire source using straw and shredded wood. The balloon—made entirely of taffeta and carrying a payload of 900 pounds including fabric, cage, and animals—flew high into the air and traveled around the area for about eight minutes before safely landing on the ground and making history (Gillispie 1983).

The balloon show marked a significant milestone in the history of science, commerce, and warfare, heralding the advent of human flight, aerial exploration, and vertical knowledge. A large crowd gathered at Versailles to witness the historic event. Although many were astonished by the spectacle, few fully grasped the profound significance of what had been achieved. One man in the crowd, however, understood the moment's transformative potential: Benjamin Franklin. The American statesman, then serving as ambassador to France, was not only a prominent politician but also an accomplished scientist. Franklin immediately recognized the vast possibilities of this new technology, foreseeing its impact on the future of warfare. In a letter to a friend, he outlined its possible uses not only for surveillance but also carrying troops into enemy territory (National Archives 1783). Franklin envisioned the balloon as a transformative innovation with the power to reshape both war and peace. Recognizing its destructive potential, he likened it to a deterrent weapon, much as nuclear weapons are perceived in modern times. He predicted that the balloon might compel "sovereigns to see the folly of wars," as its availability would make it "impracticable for the most potent of them to guard his dominions"

(National Archives 1784). At the time, not everyone shared Franklin's vision of the balloon's military potential. During another balloon demonstration in Paris, a spectator once asked him, "What good is a balloon?" Franklin famously replied, "What good is a newborn baby?" (Gillispie 1983, 52). He believed in the power of the balloon and its ability to shape the future in ways not yet imagined.

Franklin was proven right, as balloons were soon deployed on the battlefield. Their first military use occurred during the French Revolutionary Wars at the Battle of Fleurus on 26 June 1794, when the French army used a hot-air balloon for vertical reconnaissance. Tethered to the ground, the balloon carried observers who relayed enemy troop movements to commanders using flags and signals, providing a strategic advantage that contributed significantly to the French victory (Squires 1937; Gillispie 1983; Kaplan 2018). Balloons became a standard tool in Western armies, which recognized their utility, with "ballooning units" integrated into major military forces. Napoleon even considered using a fleet of troop-carrying balloons to invade England (Squires 1937). During the U.S. Civil War, both Union and Confederate forces employed ballooning units for reconnaissance. Sketch artists would ascend in balloons to draw scenes of enemy positions, dispatching their observations to commanders on the ground (Squires 1937; Kaplan 2018). We know what some of these early surveillance sketches looked like, thanks to a rare surviving example.

In 1861, General Joseph Hooker, commander of a Union military unit stationed at Budd's Ferry, Maryland, received a letter from Army Headquarters instructing him to produce a map of Confederate positions in Virginia. Lacking confidence in his own drawing skills, Hooker assigned the task to Colonel William F. Small, a Philadelphia lawyer volunteering in the Union Army. At the time, the Union had access to aerostats developed by scientist Thaddeus S. C. Lowe, who, after joining the war effort, was appointed Chief Aeronaut of the Union Army Balloon Corps. Over two days, Colonel Small made four balloon ascensions to conduct vertical surveillance and create a map of enemy positions. The resulting map was fairly detailed: Each visible battery and encampment was marked and numbered, with an accompanying letter offering further details. In one such note, Small wrote: "The encampment marked No. 7 on the map, is much the largest of those observed, and apparently contains several regiments. All of them together, however, do not appear to be occupied by more than 12,000 men" (Paone 2014). Remarkably, the map survived. In 2014, Thomas Paone, a curator at the National Air and Space Museum in Washington, DC, came across a copy of this unusual-looking map while searching in the collection. It did not look like a conventional map, drawn from an overhead view, but a sketch drawn from an elevated perspective showing the coast of Virginia (Figure 3). He then found the original in the U.S. National Archives, where it was kept along with some letters that explained what it was (Paone 2014). It is possible that this sketch might be one of the earliest surviving examples of vertical surveillance data—a precursor to aerial photography—produced by a military balloon.

The balloons were later used in both world wars of the twentieth century and contributed not only to intelligence gathering but also to the emergence of parachuting (Veal 2021). What all these historical technologies of aerial datafication shared was their use as military tools, primarily during wartime and on active battlefields. When the fighting stopped, the balloons were grounded. This is what distinguishes modern surveillance blimps from their historical predecessors. The modern blimp does not necessarily operate in active battlegrounds, but persistently hovers over cities, towns, and villages where no war is being fought. Modern surveillance blimps, in effect, extend the geography of war and transform the concept of the enemy. As Gregory (2011a) argued regarding the borderless nature of the U.S. War on Terror, in the logic of the blimp, everywhere becomes a potential battlefield and everyone a potential target. These platforms, in short, blur the boundary between war and peace, combatant and civilian. The modern blimp is the direct descendant of the eighteenth-century military balloon—a one-time "baby," as Benjamin Franklin described it, that has grown into a monstrous giant.

The U.S. Surveillance Blimps in Afghanistan

The U.S. war in Afghanistan was the first major conflict of the twenty-first century. The U.S. military, having achieved significant technological advancements over the preceding decades, was eager

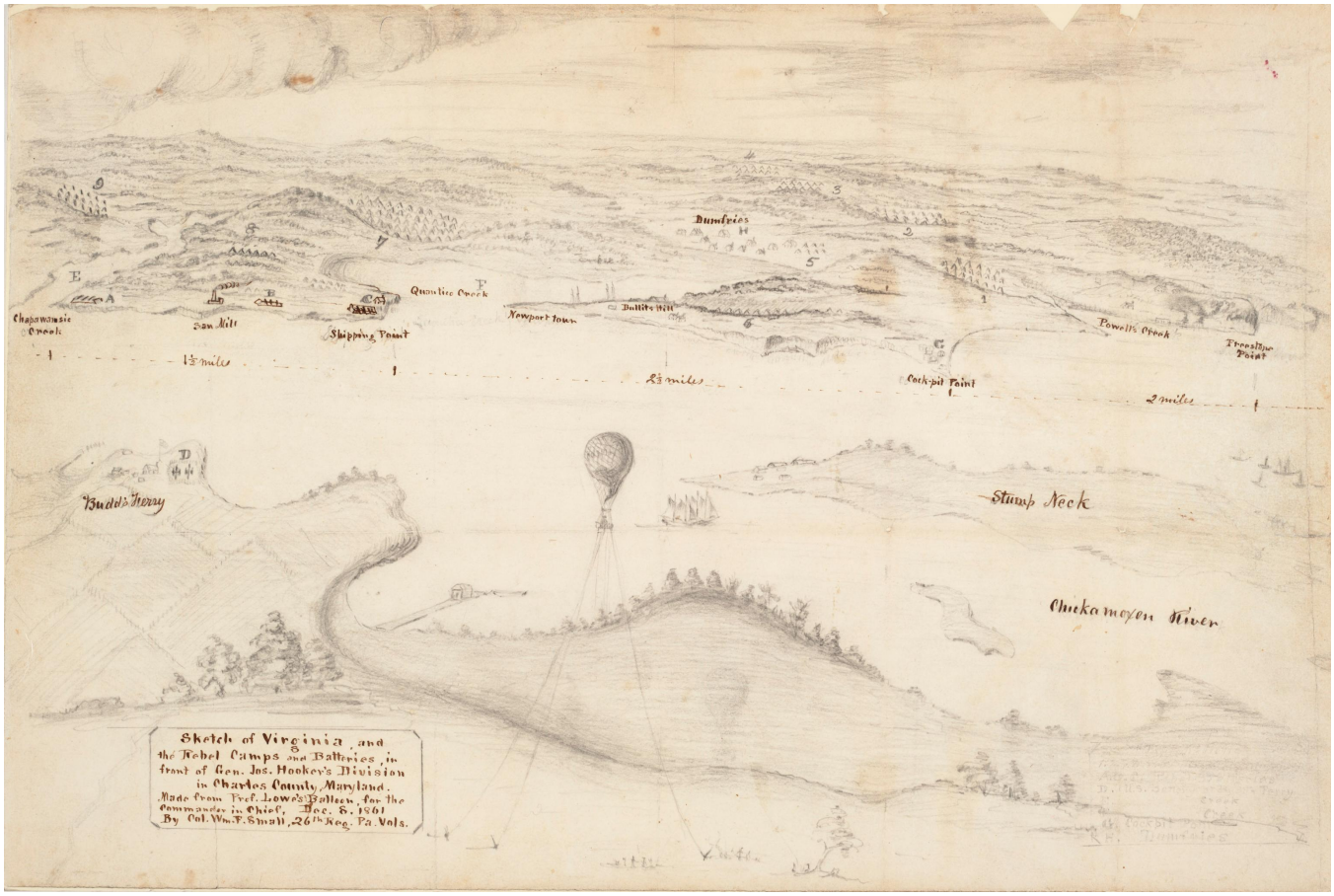
Dumfries
Quantico Creek
Chapawamsic Creek
Saw Mill
Shipping Point
Newport town
Bullits Hill
Powells Creek
Cock-pit Point
Budd's Ferry
Stump Neck
Occoquan River
Sketch of Virginia and the Rebel Camps and Batteries in front of Gen. Jos. Hookey's Division in Charles County, Maryland.
Made from Prof. Lowe's Balloon, for the Commander in Chief. Dec. 8. 1861
By Col. Wm. F. Small, 26th Reg. Pa. Vols.

Figure 3. A battlefield sketch made from a Union surveillance balloon during the U.S. Civil War, 1861. This might be one of the earliest surviving examples of vertical visual data, a historical precursor to contemporary Wide Area Motion Imagery (WAMI) systems. Photo from National Air and Space Museum, Washington, DC.

to field-test its new, high-tech weapons (Karimi 2025). By contrast, Afghanistan was a nation in ruins after years of conflict, with a broken state bureaucracy that, among other things, lacked basic knowledge of its population and geography (Karimi 2019). Finding it hopeless to build the Afghan state's information infrastructure from the ground up, the Americans instead relied on digital data collection from above, adopting a God's-eye view to know the land and learn about its people. No technology showcased this "remote" mode of governance better than the giant surveillance blimps that hovered over Afghan cities and villages.

In 2003, Afghans began noticing massive, ominous-looking balloons rising into the sky, transforming their war-torn landscape into what a Lockheed Martin promotional article would later describe as "a scene straight out of an H. G. Wells novel" (Lockheed Martin 2020). These balloons were U.S. aerial surveillance blimps. As the U.S. military established bases across the country, they relied on aerostats supplied by Lockheed Martin to monitor and secure their outposts. To address the challenge faced by U.S. soldiers who were often "hard-pressed to tell friend from foe in the crags of Afghanistan," Lockheed also provided the military with biometric devices, a novel technology, described by *The New York Times* as "mobile labs for reading fingerprints" (Weiner 2004). Following 11 September 2011, Lockheed Martin became one of the largest economic beneficiaries of the war in Afghanistan. By 2004, the defense contractor had secured billions of dollars in contracts, and its stock price had tripled over four years (Weiner 2004). The giant white balloons, resembling whales and dominating Afghan skies, represented just the most visible aspect of an extensive U.S. surveillance apparatus designed to watch, identify, and eliminate "targets."

The U.S. military's emphasis on vertical datafication was no surprise for an institution that remains a global leader in data collection, or intelligence, surveillance, and reconnaissance (ISR). On any battlefield, the military prioritizes achieving "information superiority," which the U.S. Air Force Doctrine—a set of foundational principles and best practices—defines as "the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same" (U.S. Air Force 2000, 137). In Afghanistan, sensors mounted on surveillance blimps provided a continuous stream of visual and audio data about activities on the ground. Beyond their surveillance role, these blimps also served as psychological deterrents due to their sheer size and unmistakable presence in the sky. As the Doctrine explains, "the employment of surveillance and reconnaissance assets can also help deter a potential aggressor by letting them know the United States is interested and watching closely" (U.S. Air Force 2000, 16). Few things are more effective at projecting that message than an imposing, whale-shaped balloon hovering visibly over a city or village, silently watching every movement below.

Operating beyond the reach of the Fourth Amendment, the United States transformed Afghanistan into a testing ground for advanced data-collection technologies. The Lawrence Livermore National Laboratory in California—a government research center dedicated to advancing science in service of national security—was one of the leading institutions tasked with pushing the boundaries of surveillance science. In the early 2000s, the lab launched a vertical surveillance project called the Sonoma Persistent Surveillance System. The Sonoma's research team included John Marion, an engineer with a PhD in material sciences from the University of California at Berkeley, who later transitioned to the private sector, playing a key role in the broader adoption of the technology. The lab developed a device capable of providing "continuous, real-time video imagery of an area the size of a small city with a resolution fine enough to track 8,000 moving objects in its field of view" (Lawrence Livermore National Laboratory 2006). This technology, essentially a camera system composed of multiple cameras stitched together, became known as WAMI. It revolutionized aerial surveillance, enabling operators to monitor vast areas with unprecedented detail and persistence.

The WAMI system overcame the limitations of earlier technologies of vertical surveillance. Traditional satellite images, for example, lacked clarity, and full-motion drone video feeds required operators to know beforehand where to point their cameras, offering narrow fields of view, often compared to looking through a "soda straw" (Logos Technologies 2022; Figure 4). In contrast, WAMI provided wider coverage, sharper resolution, and real-time data transmission. WAMI cameras captured video at two frames per second, significantly lower than the twenty-four frames per second typical in full-motion video. The system then seamlessly stitched together individual feeds into a panoramic image. The ability to zoom in on multiple targets at the same time allowed analysts to track several moving targets simultaneously—vehicles, people, and more—across landscapes as vast as almost half of a city like Kabul (Logos Technologies LLC 2013, 2015). Every frame in the video was geo-coded and time-stamped, which helped analysts on the ground pinpoint the exact location and time of any event. The footage could be rewound like a CCTV recording, which made it easy to trace events backward in time. For example, if a roadside bomb exploded somewhere, analysts could rewind the footage to identify the perpetrators, track their movements, and determine where they came from, where they went, and who their associates were (Lawrence Livermore National Laboratory 2006; Marion 2017; Michel 2019; Logos Technologies 2022). This is the essence of persistent surveillance: an eye that never blinks and never forgets.

In 2006, the first WAMI system, Constant Hawk, was deployed to Iraq and later to Afghanistan. Weighing 1,500 pounds, it was too heavy for standard blimps, so the U.S. military mounted it on Reaper drones (Marion 2017; Michel 2019). Shortly after, John Marion left his government position at Lawrence Livermore National Laboratory to join Logos Technologies, which developed a lighter WAMI system called Kestrel. By 2010, the U.S. military in Afghanistan began purchasing Kestrel systems and mounting them on aerostats. By then, persistent surveillance had become a lucrative industry, with rising demand attracting competitors offering systems like Persistent Threat Detection System (PTDS), Tethered Aerostat Radar System (TARS), Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS), and Persistent

Figure 4. A still from a promotional video by Logos Technologies, a major U.S. producer of Wide Area Motion Imagery (WAMI) systems. The red dot indicates the coverage area of a standard full-motion video camera, whereas the larger circle shows the expanded reach of a WAMI sensor mounted on a persistent surveillance blimp. Photo courtesy of Logos Technologies LLC.

Ground Surveillance Systems (PGSS; Marion 2017; Michel 2019). The military also planned the ambitious Blue Devil project: a 350-foot airship equipped with Gorgon Stare, a machine capable of flying four miles high, and equipped with the most advanced WAMI system. Costing $211 million, the project was eventually canceled due to poor contract management and excessive costs (Michel 2019). In 2011, General David Petraeus, commander of NATO forces in Afghanistan, disclosed that deployments of persistent surveillance systems had increased from 114 to 184 within a year, with plans for further expansion (Department of Defense 2011). This period also coincided with a helium shortage, likely exacerbated by the military's overblown blimp program in Afghanistan.

Blimps played a key role during the U.S. wars in Afghanistan, particularly in operations that required tracking suspects. A notable example occurred on 4 March 2008, when U.S. soldiers stationed at Forward Operating Base Khogyani in eastern Afghanistan were jolted by two rockets hitting near their base. The soldiers could not immediately determine where the rockets came from, but the PTDS blimp overlooking the area had recorded everything. Operators quickly identified the exact location where the rockets were launched. A report of the event noted, "The POO [Point of Origin] was picked up by the PTDS and will be investigated in the morning, along with the crater analysis" (War Diaries 2008b). We know these details thanks to a cache of 391,000 war logs from Afghanistan and Iraq (covering 2004–2009) that were leaked by anonymous whistleblowers on WikiLeaks in 2010. These reports exposed the day-to-day details of the war, including the role of surveillance blimps in fighting insurgents and protecting troops against rocket attacks and roadside bombs, known as improvised explosive devices (IEDs).

Each blimp required a team of twelve analysts, with six people per shift, to operate it effectively (Defense Visual Information Distribution Service 2010a). These analysts were tasked with monitoring video feeds, identifying potential threats, and reporting their findings to other units. The following log from a war diary illustrates a typical incident in which PTDS blimp operators detected an insurgent and relayed the information to initiate a targeted response. The incident, which took place in 2007 in Afghanistan, provides a glimpse into the inner workings of the persistent surveillance blimp during its early years. The report includes details such as precise timestamps and geocoded locations of the events:

> At 1615Z [16:15 GMT] 10 OCT 2007, PTDS views 6x PAX [persons] digging in the road and moving around at dig site. They run what appears to be wire into the tree line. A vehicle goes by and the PAX cover up what they were digging and moved SW [southwest]. PAX start moving out once Shadow [a small drone for following targets] was on their position. 42S XC 16386 92010; IED later found incomplete w/initiator.
>
> 1745Z – PAX split up (42S XC 16410 90650). At first, they all run the same direction, SE. Three PAX continue SE. One of the other individuals continues SE by himself because the others were not able to keep up (man #4). The fifth individual attempts to follow man #4 over the hills but he can't run as fast. The sixth individual gets away due to three assets and four targets.
>
> At 1745Z the group of three moves away from rest of the group headed SE on a trail (42S XC 16248 90717).
>
> At 1827Z, the single PAX moves quickly away from group and does not stop running (42S XC 17090 90310), and at 1832Z – Single PAX continues up a hill and still does not stop or slow down (42S XC 18460 89900, and shortly after at grid 42S XC 19380 89570). PTDS loses visual on single PAX. Last known location. IVO [in vicinity of] Shakerian Village (42S XC 20660 88610).
>
> At 1900-1909Z, the group of three PAX reaches Khugay Village (42S XC 16166 89305), where they are PUC'd [arrested – person under control] by 1/B/1-508th [an airborne infantry unit] PIR [?] (2x PAX PUCd at 1900Z, and the final PUCd at 1909Z). Then,
>
> at 1930Z single PAX reaches foothills and begins to walk – he seems really out of breath (42S XC 17420 90250), and
>
> at 1934Z – Single PAX stops to sit on a rock at (42S XC 17720 90178). The U/I [unidentified] man hides under a rock shelf. He stays there for approx. 10 minutes and keeps looking out from under it (42S XC 18160 89700). CAS [close air support] cleared HOT [permission to open fire], there are 3x unsuccessful A-10 gun-runs at grids: (42S XC 18650 89975, (42S XC 18741 89921), (42S XC 18838 90072). Hawg17 [an aircraft] attacked 3X enemy PAX with 1XMK-82. There was a total of 4 separate gun runs and 1 GBU-12 pass. After initial strike Hawg17 reported no further movement at the time. However, Hawg18 later observed a few hot spots under a tree in the same area. Hardrock32 requested a gun pass and Hawg18 reattacked with 30MM at 2059Z. All fires were observed through shadow feed. Resulting in one suspected enemy KIA [killed in action] at (42S XC 18796 89718).
>
> Total BDA [battle damage assessment]: 3x EWIA [enemy wounded in action], 1x EKIA [enemy killed in action]. (War Diaries 2007)

From its vertical position, the blimp perceived the landscape in ways inaccessible to those on the ground. Although the locals perceived walls and alleys as barriers that restricted sight and movement, the blimp's vertical perspective smoothed the terrain into a legible surface, granting its operators an uninterrupted view of roads, rocks, ditches, and compounds. This, in more than one sense, was an asymmetric war. This type of vertical domination has been likened to the ability to "walk through walls" (Weizman 2017a, 198–199). By radically reinterpreting territory and visibility, the blimp secured information superiority over those confined to the ground, such as the men described in the report. In short, the U.S. war in Afghanistan was fundamentally a vertical exercise of necropower, with blimps playing a central role in the military's arsenal, as revealed by the War Diaries. Far from being merely a harmless eye in the sky, these surveillance systems were active instruments of warfare, an integral part of the so-called kill chain.

"Balloon of Democracy:" The Public Resistance to U.S. Surveillance Blimps in Afghanistan

People often express concern over the loss of privacy yet behave in ways that contradict this expressed worry, a phenomenon known as the privacy paradox (Brown 2001). While this inconsistency has led to the spread of surveillance technologies and platforms across daily life, scholars have recently attributed this behavior to digital resignation (Draper and Turow 2019). Built on Benson and Kirsch's (2010) work on the "politics of resignation" (462), digital resignation refers to a condition "when people desire to control the information digital entities have about them but feel unable to do so" (Draper and Turow 2019, 1824). In this state of powerlessness, voicing discontent might be one of the few avenues remaining for resisting surveillance.

In war zones, the dynamic concerning surveillance remains remarkably similar, despite people having greater problems than the loss of privacy.

Amid widespread insecurity, local populations often submit to intrusive forms of surveillance—such as persistent surveillance blimps—out of resignation, lacking the power or means to effectively resist. This submission, however, does not signal a total absence of resistance. In Afghanistan, for example, Taliban fighters initially tried to shoot them down, only to find that bullet holes had little effect and that firing only revealed their positions to U.S. forces. With this option ruled out, one of the few accessible forms of resistance left to local populations was voicing their discontent. This section examines Afghan expressions of opposition to U.S. surveillance blimps.

These local acts of resistance expose both the human toll of persistent surveillance and the limits of vertical governance as a security strategy. Analysis of the Afghan mediascape reveals two dominant themes in public discourse around the U.S. blimps. First, the blimp was perceived as a violation of privacy, showing that even in war zones, people object to being constantly watched. The blimp intruded into personal and domestic spaces and violated Afghan norms of privacy that are usually different from how privacy is perceived in the West. Second, many residents mistakenly believed the blimps were intended to provide security for civilians. This misunderstanding led to frustration when no significant improvements in security were observed, prompting many to question the purpose of the blimps' presence.

In 2009, a giant balloon appeared over Kabul, the Afghan capital. Although U.S. blimps had already been deployed in rural areas, this was the first time residents of Kabul encountered one. At first, no one knew what it was or what it did, although many rightly assumed it was related to foreign forces. Speculation ran wild, with one man incorrectly suggesting, "Afghans and Americans are up there" (Bowley 2012). The arrival of the blimp coincided with the presidential election campaigns, fueling further rumors. Despite the secrecy surrounding the blimp, one writer in Kabul, Buda (2009), wrote an article in Persian, trying to explain the areal mystery:

> The balloon that hovers in Kabul's somber and dusty sky these days gazes coldly and intently at the city's ruins. Floating directly above television transmitters that bombard people with countless lies and colorful propaganda, it silently and thoughtfully devours everything in its stillness. The balloon knows that fate has already been sealed, and it laughs at the plight of the people of this city, who will naively head to the ballot boxes tomorrow. The mysterious silence of this balloon conveys a lot of meaning. The balloon does not speak, nor does it broadcast images; it is a repository of secrets, consuming all the mysteries of the city, sending them to distant archives, and never revealing the secrets it carries within. These days, few people fail to ask: "What is that thing hovering above Kabul?" Yet no one knows the definitive answer: "A balloon! Just a balloon, floating because it is light." The balloon displays the absurdity of Afghanistan's so-called democracy. The hollow belly of this monstrous bird, looming over Kabul's sky, will never be filled. This balloon is, in truth, the greedy, insatiable, and perpetually anxious eye of power—an unblinking eye whose cruel pupil harbors hostility toward everything it sees. Even the most private moments of Kabul's citizens are not safe from its invasive gaze. Launched by ISAF [NATO's International Security Assistance Forces in Afghanistan], under the pretense of securing Kabul, this balloon represents the one-way gaze of hidden puppet masters—those who see without being seen. It is the eye of those who, before finishing their second cigarette or emptying their glass of alcohol, have already sealed the fate of this city, this people, and this game. (Buda 2009)

His critical assessment, although a bit speculative, came remarkably close to the truth. As he observed, the Afghan state, despite performing the symbolic rituals of sovereignty such as holding elections and maintaining courts, an army, a presidency, and a parliament, was not truly in control. If we define sovereignty as the "right to *take* life or *let* live" (Foucault 1990, 136), the true sovereign of Afghanistan was the U.S. military. It was the U.S. forces who watched everyone at all times and held the unilateral power to decide who would live and who would die, with no fear of accountability. Hamid Karzai, the Afghan president installed by the Americans, would burst into tears speaking about the war's high rate of civilian casualties, but beyond such emotional appeals he had little recourse (King 2010). He was, in effect, a symbolic sovereign. The blimp, alongside other vertical instruments of U.S. military power, stood as a prominent reminder of where real authority resided in a country under foreign occupation.

Privacy and Persistent Surveillance

In 2009, the United States flew a blimp in Kandahar as well—Afghanistan's second-largest city and a Taliban stronghold. The summers in Kandahar

are hot, with temperatures often soaring into the forties Celsius. In a city without reliable electricity to power air conditioning, residents relied on sleeping outdoors, often on rooftops or in courtyards, to cool down at night. When a massive blimp suddenly appeared in the sky above the city sometime in June, the locals were startled. It did not take long for them to realize it was there to watch them. Muhammad Lalai, a resident, told a local journalist, "Even though the weather is hot, we are afraid to sleep on our rooftops at night because of this balloon" (Abna 2013). The same sentiment was echoed by a man in Kunar, who complained to a U.S. journalist, "We cannot sleep on our rooftops anymore" (Bowley 2012). The unease of these Afghans was justified: The blimp could see everything. Lieutenant Colonel Brian Spears, a U.S. blimp operator, marveled at its capabilities: "From six kilometers away, I could see a guy holding an AK and tell you what color his beard was" (Coll 2018, 475).

The U.S. blimp showed a blatant disregard for the Afghan sense of privacy, intruding into spaces traditionally shielded from outside view. In Afghanistan, privacy is often embedded in the architecture of homes, where high surrounding walls serve both protective and cultural purposes. The courtyard, nestled within these walls, is considered an intimate, private space, inaccessible to strangers (Figure 5). This concept was foreign to the blimp and its operators, who monitored Afghan houses from above, day and night, violating this sensitive boundary. In Kunar province, one man expressed his frustration specifically about this, explaining how the blimp's constant gaze limited women's movement inside their own homes: "Whenever our female family members walk in the yard during the day … we feel someone is watching us" (Bowley 2012). For blimp operators, who came from a culture where yards are often considered public spaces, this Afghan sensitivity was either poorly understood or deliberately ignored.

Figure 5. In Afghanistan, even modest houses typically include private yards enclosed by privacy walls, as shown in this image from Kabul province, 2015. Persistent surveillance blimps hovering overhead took away people's privacy even when they were in their own homes. Photo from iStock by Getty Images.

The result was a continuous violation of cultural norms, turning a once-private sanctuary into a monitored space under an unblinking foreign eye.

In some instances, the privacy violations by blimp operators extended beyond watching courtyards from above. In rural Afghanistan, where bathrooms are scarce, people often relieve themselves outdoors (Jacobsen 2021). Blimp operators, tasked with monitoring villages, would follow people everywhere, even during these private moments. One former operator, Kevin H, admitted to a journalist, "I have literally watched thousands and thousands of shits being taken in Afghanistan" (Jacobsen 2021, 128). The operators had categorized squatting outdoors as a potential security threat, which explains their unsettling interest in observing people relieving themselves. As Kevin explained, "There are only a few reasons to squat in a field in Afghanistan: to take a shit, farm your land, or bury an IED, which takes about the same time. Four minutes" (Jacobsen 2021, 128). Using the blimp's electro-optical-infrared cameras, Kevin would analyze the heat signatures of individuals squatting in fields. Waste, he noted, leaves the body at 98.6 degrees Fahrenheit, making it distinguishable on the sensors (Jacobsen 2021). If the person was simply relieving themselves, the operators would move on. "You don't want to fucking kill someone for taking a shit," Kevin remarked (Jacobsen 2021, 128). If the individual was planting an IED, though, the operators would relay the data up the kill chain, triggering potential military action. The disturbing intimacy of U.S. vertical surveillance in Afghanistan meant that for ordinary Afghans, even the simple act of relieving oneself could potentially result in the loss of life, or at least dignity and privacy.

The blimp faced public backlash, particularly from Afghan citizens concerned about privacy violations. An author, writing for a Pashto-language Web site, criticized the blimp as an infringement on personal privacy (Mangal 2015). Although his article included some misunderstandings and misinformation—such as the claim that the balloon could surveil an area the "size of a U.S. state" and that it cost "three billion dollars, yes three billion dollars"—his core arguments against the blimp were more compelling. He presented three main objections: First, he argued that the blimp violated Afghanistan's constitution, which guarantees the right to privacy. The balloon, he wrote, "can view people's homes, private properties, and private lives, which is unconstitutional." Second, relying on religious principles, he cited *hadiths* (sayings of the Prophet Muhammad) that instruct, "Permission must be sought three times before entering someone's house, and if permission is not given, that person has no right to enter." The author contended that using blimps to "peek into Afghan homes" was equivalent to entering them by force and without permission. Third, he argued that the blimps violated international law, "laws made by these Westerners," specifically Article 12 of the Universal Declaration of Human Rights, which protects individuals from arbitrary interference with their privacy, family, home, or correspondence (Mangal 2015). Although some of his claims about the blimp's capabilities were inaccurate, his arguments highlighted legitimate cultural, legal, and ethical concerns surrounding persistent surveillance blimps.

The Taliban insurgents, who had good reasons to not like the blimps, attempted to resist the spy machines by shooting them down. They quickly discovered, however, that gunfire was largely ineffective against these aerial sentinels. The internal pressure of the blimps was similar to the external atmospheric pressure, meaning that when a bullet punctured the surface, the blimp did not explode but instead developed a slow leak—one that was easily repairable (Defense Visual Information Distribution Service 2010b). Locating and fixing the bullet holes was a straightforward process. According to the unpublished memoire of Robert Crimmins, a former blimp operator in Iraq and Afghanistan, operators would bring the blimp down, spray it with soapy water using a pressure washer, and watch for bubbles to identify leaks. The holes would then be patched with adhesive and fabric covers (Crimmins n.d.). The Taliban later realized that firing at the blimps was not just futile, but also dangerous. Each shot exposed their exact positions to U.S. forces, who used such attacks for forensic surveillance. As one U.S. Army colonel explained, "We like it when enemy forces shoot at the balloon. Because when they do, it tells us exactly where they are" (Defense Visual Information Distribution Service 2010b). By rewinding aerial footage, operators could trace the insurgents' movements, identify their origins, and map out their associates. The blimps would turn those attacks into an intelligence opportunity.

The only force capable of reliably bringing down a blimp was nature itself. In Iraq, one U.S. blimp was destroyed by a lightning strike (War Diaries 2008a), and in Afghanistan, a dust devil wind tore a

blimp loose, forcing U.S. forces to chase it as it drifted away (Crimmins n.d.). For the local population, however, the blimps were untouchable. With no effective means to challenge or resist the imposing balloons, people were left with no choice but to live under their unblinking gaze, fully aware that Americans were watching them at all times.

Misunderstanding the Purpose of the Blimp

When faced with intrusive surveillance justified in the name of security, people often reluctantly (and almost always mistakenly) accept it in the expectation of gaining safety in return (Rule 2007). The people of Afghanistan were no different. They, too, hoped that the giant surveillance balloons overhead would help prevent the Taliban's frequent attacks on civilian targets. On 15 August 2009, however, a car bomb exploded just steps away from NATO's headquarters in Kabul, killing seven people and injuring ninety-one others, most of whom were civilians (Gall and Rahimi 2009). It happened right under the big balloon. Kabul-based writer Asad Buda questioned how such a sophisticated spy machine, one that violated everyone's privacy, could fail to prevent the bombing. Its failure undermined the public's trust not only in the Afghan state but also in Afghan democracy—if such a thing ever existed. Buda used the incident to challenge the supposed trade-off between privacy and security:

> Two days ago, right before the eyes of this balloon and just steps away from ISAF, which launched it into the skies of Kabul to ensure the city's security, a suicide attack injured more than 91 people and left about 7 others dead. Today, a rocket struck the Presidential Palace, yet the balloon remained indifferent—much like Afghanistan's hollow democracy, which seems perpetually blind to the suffering and struggles of its people. This balloon could aptly be named the "Balloon of Democracy." Floating like a faint specter over the capital, where the parliament, ministries, and other centers of power are located, it symbolizes the ghost of Afghanistan's democracy. A democracy that, much like the balloon itself, is empty like a bubble, yet grand in appearance. (Buda 2009)

He was not wrong to depict the blimp as an expensive gadget ultimately useless in serving the public good. Much like the rituals of Afghan elections—widely perceived as rigged and offering only an illusion of democracy—the blimp provided little more than an illusion of security. It was, in Buda's (2009) words, the "balloon of democracy." Frustration over the blimp's ineffectiveness was widespread. Aqa Jan, a shopkeeper in Kandahar, voiced his disappointment to a journalist: "I urge the government to remove these balloons from the sky because they have no impact on security. They are a threat to our privacy, and we have not seen any improvement in the security situation. Security remains the same as it was before these balloons appeared in the sky" (Abna 2013). Similar sentiments were shared by some Afghans on social media, especially in the aftermath of violent attacks in their cities. Many struggled to understand how such an advanced surveillance machine, persistently hovering above with the ability to watch everything, could fail to prevent bloodshed on the ground (Latifi 2021; Shinwarai 2021). Afghans viewed the giant blimp as an omnipotent security apparatus, and its inability to prevent atrocities became a source of public anger and frustration.

In 2020, similarly, a chauffeured car belonging to the Afghan Central Bank exploded in Kabul, killing three employees inside, including Yama Siawash, a former journalist who had recently joined the bank as a public relations advisor. The police treated the incident like other terror attacks in Afghanistan: They hosed down the crime scene and quickly moved on. The Afghan public, long accustomed to institutional dysfunction, expected little more. In this case, though, the victim's father, Dawud Siawash, refused to let it be forgotten. He pressured the government to investigate the incident and identify those responsible for his son's death. After repeatedly being ignored, he published a detailed open letter demanding accountability. In it, among other requests, he urged authorities to review footage from the U.S. surveillance blimp that hovered over the city (BBC Persian 2020; Siawash 2020). His request was reasonable: If the persistent surveillance blimp had any purpose, it was to record these kinds of incidents using its WAMI system. His plea, as expected, was dismissed by both the Afghan government and U.S. forces. It was yet another reminder of life in a state with compromised sovereignty. The blimp, despite watching everything from above, ultimately served U.S. interests alone. It recorded Afghan lives, but did not protect them—even when it could have.

What Siawash—who died in exile in Germany two years ago without ever receiving closure on his son's death (Miller and Birkenstock 2023)—and

many other Afghans misunderstood was the fundamental logic behind the U.S. blimp: It did not see Afghans on the ground as people to be protected, but as potential threats to be monitored. At its core, the blimp was a "force protection" technology (Defense Visual Information Distribution Service 2010a) designed to safeguard Americans, not local civilians. Its advanced surveillance capabilities allowed it to see and hear events on the ground in remarkable detail, but the data it collected served a narrow, strategic interest. It was neither for justice nor for safety, but for control. Three Afghan fuel contractors learned this the hard way. In 2012, in a local court, they were accused of stealing fuel intended for U.S. forces. When the men denied the allegations, the Americans presented video evidence captured by the blimp, showing them siphoning fuel from U.S. tankers and selling it on the market. One court attendee, astonished by the clear video, remarked: "How come they could see the fuel contractors selling fuel in the market but not the armed opposition?" (Bowley 2012). The blimp, Afghans learned that day, had an eye that was sharp and focused, but only when it served U.S. priorities.

In the end, the people of Afghanistan resigned themselves to the blimp's presence, accepting it as an unavoidable reality of daily life. In southern Afghanistan, locals even gave the U.S. blimps nicknames like "frogs" and "milk fish" [*shir-mahi*], a type of fish (Bowley 2012). On one occasion, an Afghan villager approached a U.S. military base to ask for a favor. "I know you're watching us," he told them. "Who stole my goat?" (Jacobsen 2021, 125). Little did he know, however, that the high-tech spy machine, even if it had seen the goat thief, would not care—unless, of course, the missing goat was somehow involved in digging a hole for a roadside bomb.

In early 2021, however, change swept across the Afghan skies. For the first time in nearly two decades, Afghans woke up to find the blimps were gone. The U.S. military was in the process of closing bases, dismantling its infrastructure, and preparing for a final withdrawal. As part of this drawdown, the surveillance balloons were hastily taken down one by one across the provinces. On the ground, the Afghan government was rapidly losing territory, with the Taliban advancing district by district (BBC News 2021). The absence of the blimps became a clear symbol of shifting power dynamics: a silent but unmistakable sign of U.S. retreat and Taliban resurgence. For the Taliban, the disappearance of the balloons was a cause for celebration. On Twitter, a Taliban-affiliated account triumphantly declared in Pashto: "A friend from Logar reported that, with the grace of God, as a result of the sacrifices of the blessed people, the great symbol of the occupation from the Khizr military base in Logar has disappeared, which was always in the sky and watching the believers. Now the sky is clear. #American_Balloons" (Ambassador of Islam 2021). The empty sky over Afghanistan symbolized more than just the departure of surveillance technology, it represented the end of an era, the collapse of a two-decade military occupation, and the beginning of a new chapter under Taliban control.

After the hasty withdrawal of U.S. troops, a part of their high-tech surveillance infrastructure was left behind. Recognizing the strategic value of blimps, the Iranian government reportedly sought to acquire abandoned U.S. surveillance equipment through the black market. In one notable case, the Taliban arrested a man from Gizab, Uruzgan province, who attempted to sell a deflated U.S. blimp along with two WAMI systems to Iranian agents (Ministry of Interior Afghanistan 2022; Figure 6). According to the suspect, the blimp had detethered in 2021 during the U.S. withdrawal and was left abandoned in a village in Gizab. The Iranians reportedly offered him 35 million Afghanis (approximately US$470,000) for the deflated blimp and WAMI systems before the Taliban's intelligence agency intercepted the transaction. A promotional video about the arrest, released by the Taliban's Ministry of Interior, stated: "It's expected that these surveillance balloons will be relaunched by the Islamic Emirate in the future. With these balloons, Emirate officials say, they will be able to clearly monitor criminals" (Ministry of Interior Afghanistan 2022). The Americans have left Afghanistan, but their legacy is likely to last for a long time.

Conclusion

Military power, more than ever, hinges on vertical knowledge: the ability to see, track, and strike from above. The quest to secure the high ground in war, evident in vertical infrastructures ranging from ancient watchtowers to eighteenth-century military balloons, is as old as war itself. As Virilio (1989) argued, however, the "logistics of perception" (4) has gained greater importance in late modern warfare, where advanced vertical surveillance technologies have made vision and violence inseparable. The role

Figure 6. In 2022, the Taliban arrested a man allegedly attempting to sell an abandoned U.S. surveillance blimp to Iranian agents. Visible are two Wide Area Motion Imagery (WAMI) systems and other onboard surveillance equipment once used by U.S. forces. Photo by Taliban's Ministry of Interior.

of aerial surveillance has expanded dramatically since the War on Terror. Weizman, Graham, Gregory, and Amoore, among other scholars, have shown how the modern drone—relatively inexpensive, remotely operated, mobile, and lethal—has reshaped the geographies and temporalities of military power. Long-endurance drones, in particular, allowed the U.S. military to track targets in remote places for extended periods. Despite the drone's capacity to loiter for hours over a single area, it cannot provide truly persistent, round-the-clock, all-weather surveillance in contested spaces. For that, the military has turned to the blimp.

This article, building on vertical surveillance scholarship, draws attention to the persistent surveillance blimp, a secretive spy machine designed to overcome a critical limitation of nearly all other vertical data collection systems: persistence. Persistent surveillance blimps represent a paradigm shift in the logic and logistics of military surveillance. These blimps carry out continuous, automated, wide-area, all-weather surveillance from above for extended periods, dissolving the temporal and spatial constraints that have historically limited high-endurance drones. The U.S. military deployed these persistent surveillance blimps across Afghanistan in areas where commanders felt they could not risk taking their eyes off the target population for even a minute. The unforgiving persistence of the blimp, in turn, transformed entire regions into "quasi-carceral locations" (Shrestha and Fluri 2023, 4), where inhabitants were treated like prisoners. Throughout the twenty years of occupation, the U.S. blimps remained a fixture of the landscape in many Afghan towns and villages. As is the case with most surveillance technologies, people submitted to its intrusive gaze out of resignation but not necessarily without voicing their protest.

The blimp, along with other U.S. surveillance systems, treated Afghanistan as a "space of exception" (Gregory 2023, 378), a place where all laws, whether U.S., international, or Afghan, were effectively suspended. Within this juridical void, people were exposed to lethal drone strikes and the intrusive gaze of persistent surveillance blimps without any form of legal protection. Nevertheless, as this article demonstrates, ordinary people did not hide their frustration with this colonial condition, despite the power asymmetry. Discussions across local press and social media reveal widespread concern about the loss of privacy and the ways in which the blimps hovering above homes stripped residents of both political sovereignty and personal dignity. Although this resistance was primarily

discursive, it remains a significant expression of public anxiety about the uneven power relations that define life under foreign military occupation.

Despite a direct lineage connecting today's AI-powered persistent surveillance blimps to the eighteenth-century military balloons, a crucial difference distinguishes the two. Whereas early balloons were deployed exclusively on active battlefields, the modern blimp operates as a technology of both warfare and governance. It serves as a policing instrument in places where colonial powers seek to rule populations they cannot physically control on the ground. As a result, while the blimp might symbolize power and control, it equally signifies fear and failure: It hovers over places where the occupying force, feeling unwelcome, perceives the terrain—its roads, walls, windows, and courtyards—as potential sources of threat. The U.S. blimp's very presence above Afghan towns and villages thus exposed the fragility of the military operation and the illegitimacy of the occupation itself.

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